RUST ENVIRONMENT & INFRASTRUCTURE

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May 26, 1993
Project No. 80123.950

Mr. Randy T. Ogg
EG&G Rocky Flats
P.O. Box 464
Golden, Colorado 80402-0464

Re: Drum Sampling

Dear Randy:

Pursuant to our status meeting of March 11, 1993 RUST Environment and Infrastructure prepared operating procedures for drum sampling. Boreholes 40693, 42693 and 44693 were drilled in locations with shallow depths to bedrock, and consequently no samples were taken to enable waste characterization in the associated drums. During our March 11th meeting, the options for characterizing waste at these locations were discussed, including redrilling the boreholes and sampling, or sampling the drums only. Drum Sampling was selected as the most efficient and economical alternative, and was scheduled after drilling activities in the RCA were completed.

Each borehole has one or more drums of waste as a result of drilling operations. Samples were collected from each drum as follows:

Borehole 40693	1 drum	1 sample suite
Borehole 42693	1 drum	1 sample suite
Borehole 44693	3 drums	3 sample suites

Ed Keil, EG&G Rocky Flats Plant Environmental Management, was notified of drum sampling activities prior to their execution. He was also notified following activities to ensure new tamper seals would be placed on the drums affected by our activities.

Drum sampling was completed on May 14, 1993. The sampling required two people (Sample Technician and Health and Safety Specialist) for one-half day. The attached Drum Sampling Operating Procedure was followed to complete this task.

Please call if you have any questions regarding these procedures.

Sincerely,

RUST Environment & Infrastructure

Henry C. Leighton, PE
OU4 Assistant Project Manager

cc: Steve Paris, EG&G
B. Neary, RUST E&I
R. Michelson, RUST E&I
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DRUM SAMPLING OPERATING PROCEDURE

When obtaining geochemical samples strictly for the purpose of characterizing the environmental materials present in drums, the following procedures will apply.

1.0 PURPOSE AND SCOPE

This operating procedure will be used at the Rocky Flats Plant (RFP) and describes equipment, decontamination, and procedures that will be used for field data collection and documentation during analytical sampling of drums in order to attain acceptable standards of accuracy, precision, comparability, representativeness, and completeness.

2.0 RESPONSIBILITIES AND QUALIFICATIONS

Personnel using light or heavy equipment, scientific monitoring devices, or operating company vehicles must have appropriate training and/or licenses as required by the approved OU4 Phase I RFI/RI Health and Safety Plan (OU4 HASP).

The subcontractor's sample manager is responsible for the proper handling of all waste materials and samples generated during drum sampling activities.

The subcontractor is responsible for re-sealing the drum after sampling and ensuring that the area surrounding the drum is not contaminated by drum sampling activities.

It is the subcontractor's site manager's responsibility to report as soon as possible to the EG&G project manager or a designated EG&G representative any damage incurred to a drum as a result of drum sampling activities. Types of damage includes holes, damage to the lid seal, or any other problem that may compromise drum integrity.

Radiological Engineering-approved subcontractor Health and Safety Specialists are responsible for conducting radiation and organic screenings of equipment, samples, and personnel before they leave potentially contaminated work areas.

3.0 INTERNAL REFERENCES

Related documents and SOPs cross-referenced in this SOP are as follows:

- OU4 Phase I RFI/RI Health and Safety Plan
- OU4 RCRA Phase I RFI/RI Work Plan
- OU4 Phase I RFI/RI Sample Data
- SOP FO.3, General Equipment Decontamination
- SOP FO.4, Heavy Equipment Decontamination
- SOP FO.6, Handling of Personal Protective Equipment
- SOP FO.7, Handling of Decontamination Water and Wash Water
- SOP FO.8, Handling of Drilling Fluids and Cuttings
- SOP FO.9, Handling of Residual Core and Laboratory Samples

- SOP FO.10, Receiving, Labeling, and Handling Environmental Materials Containers
- SOP FO.12, Decontamination Facility Operations
- SOP FO.13, Containerization, Preserving, Handling and Shipping of Soil and Water Samples
- SOP FO.14, Field Data Management
- SOP FO.15, Photoionization Detectors (PIDs) and Flame Ionization Detectors (FIDs)
- SOP FO.16, Field Radiological Measurements
- SOP FO.18, Environmental Sample Radioactivity Content Screening
- SOP GT.2, Drilling and Sampling Using Hollow-Stem Auger Techniques

4.0 EQUIPMENT

The following list of equipment and materials will be required during drum sampling activities:

- Stainless steel shovels and scoops
- Hand auger
- Paint stick for marking drums
- Organic Vapor Meter (OVM)
- Field radiation monitor
- Drum bung wrench
- Tools for opening and sealing open-top 55-gallon or 30-gallon drums with a clamp type sealing band
- Tape measure
- Opaque weather-proof sheeting (4-mil polyethylene)
- Personal Protective Equipment (PPE) as specified in the OU4 HASP
- Sample jars and labels
- Coolers
- Blue ice
- Appropriate documentation forms
- Phosphate free, lab-grade detergent (e.g. Liquinox)
- Tap water
- Distilled water
- Plastic buckets
- Scrub brush
- Stainless steel bowl
- Stainless steel long-handled spoon
- Location map(s)
- Field book

5.0 CONTAMINATION CHARACTERIZATION

The use of field monitors for the detection of volatile organics and radionuclides is discussed in SOP FO.15, Use of Photoionizing Detectors and Flame Ionizing Detectors; and SOP FO.16, Field Radiological Measurements; and their use is defined in the OU4 HASP.

The types of contamination that may be encountered within potentially contaminated work areas include the following:

- Low-level radioactively contaminated substances
- Nonradioactive RCRA-regulated hazardous substances
- Mixed (low-level radioactive and hazardous substances)

6.0 PRE-SAMPLING PROCEDURES

Pre-sampling procedures will be conducted prior to drum sampling regardless of the work area characterization. Pre-sampling procedures include the following:

a) All equipment will be decontaminated before arrival at the work area (SOP FO.3, General Equipment Decontamination).

b) The ground surface within a 5ft radius of the drum will be covered with plastic sheeting to prevent contamination to the surrounding soils.

c) Field monitoring will be conducted by the subcontractor within each work area according to SOP FO.15, Photoionization Detectors (PIDs) and Flame Ionization Detectors (FIDs), and SOP FO.16, Field Radiological Measurements.

d) Prior to collecting a sample, dessicant will be peeled with a stainless steel instrument to expose the true waste material surface. Dessicant will be stored separately on plastic sheeting and placed back into the drum from which it was removed as part of post-sampling activities.

7.0 SAMPLE PROCEDURES

7.1 Sample Collection

Each drum will be sampled separately. Samples will be collected using a guelph hand auger with a minimum 1.5" diameter and 6" core length. Sample will be collected from the material filling the entire depth of the drum by collecting continuous cores from the surface immediately below the drum's top layer of dessicant to the surface of the dessicant layer on the drum's bottom. Dessicant present in a core will be removed where possible and not included with sample material.

Sample locations in the drum will be determined by dividing the horizontal surface area of the drum into three equal pie sections, and pulling sample from the center of each pie section. Volatile organic samples will be composited by removing an equal quantity of sample from all of the cores from the same drum. All other samples in the sample suite will be collected from the drum's remaining core material composited in a stainless steel bowl, and kept in a safe location out of the sun. [Environmental samples generated during drilling operations are in constant motion as they are generated, move up the borehole, and accumulate. Therefore, compositing samples is representative of what is in the drums.] The composited samples will then be placed in containers consistent with SOP FO.13, Containerization, Preserving, Handling and Shipping

of Soil and Water Samples, for analytical testing and SOP FO.18, Environmental Sample Radioactivity content screening.

Between individual drum sampling events, all sampling equipment will be decontaminated. All samples containers will be labelled immediately with the following information:

- Company
- Job number
- Sample number
- Date and time of sample collection
- Sample type
- Borehole location number
- Preservation method
- Container number
- Volume of sample bottle
- Analysis to be performed
- Barrel identification number
- Name of sample collector

One sample per drum will be submitted for the following analyses (as defined for the "ITS and Around Ponds" areas in the OU4 RCRA Phase I RFI/RI Work Plan):

- RAD screen
- Nitrate
- U233/234, 235, 236, 238
- Gross Alpha and Beta
- Tritium
- TAL Metals
- TCL Volatile Organics
- Cyanide and Sulfide

7.2 Quality Assurance/Quality Control Samples

Quality assurance and quality control protocols for drum sampling field activities and sample collection will be conducted according to SOP FO.14, Field Data Management and Section 7, Field Sampling Plan, OU4 Phase I RFI/RI Work Plan.

8.0 POST-SAMPLING PROCEDURES

Post-sampling procedures will be conducted following drum sampling. Post-sampling procedures include the following:

a) Unused sample will be deposited back into the drum from which it was removed.

b) Dessicant peeled from the drum surface in the pre-sampling activities will be placed back into the drum from which it was removed, and will be placed on top of waste material surface.

c) When drum sampling activities are complete, the drums will be re-sealed and visually checked for integrity.

d) Each drum will be marked to document the re-opening of the drum and sampling date.

9.0 DECONTAMINATION

Decontamination procedures are described in SOP FO.3, General Equipment Decontamination and SOP FO.4, Heavy Equipment Decontamination and SOP FO.7, Handling of Decontamination Water and Wash Water.

10.0 HEALTH AND SAFETY

Health and Safety procedures are described in the OU4 HASP and SOP FO.6, Handling of Personal Protective Equipment (PPE).

11.0 DOCUMENTATION

A permanent record of the implementation of this SOP will be kept by documenting field observations and data. The appropriate forms as specified in the Standard Operating Procedures for Field Operations and Geotechnical Investigations will be completed and submitted according to the SOPs.